



## **2018 SmartScale Project Discussion**

### **Board of Supervisors Discussion**

**June 12, 2018**

**Madison County, Virginia**

## AGENDA

- **SmartScale Overview**
- **Existing Conditions**
- **Crash Data Review**
- **Application #1 – Route 29 Corridor**
- **Application #2 – Route 29 / Fairgrounds Intersection**
- **Application #3 – Pratts Roundabout**
- **Next Steps**

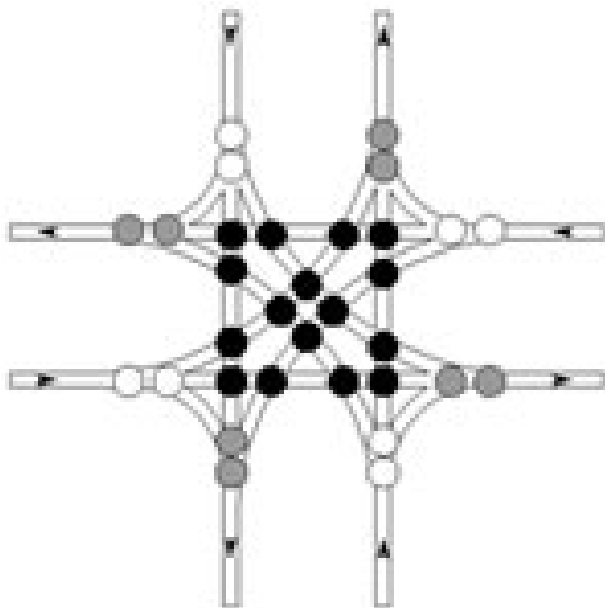
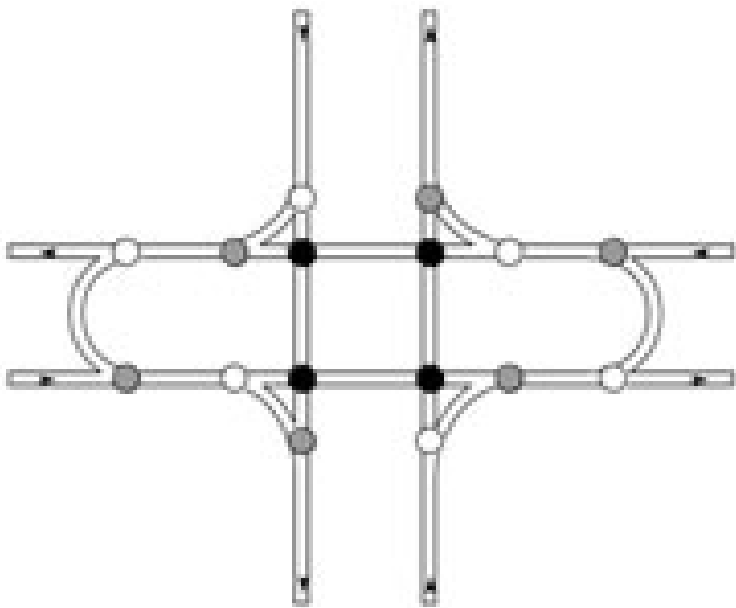
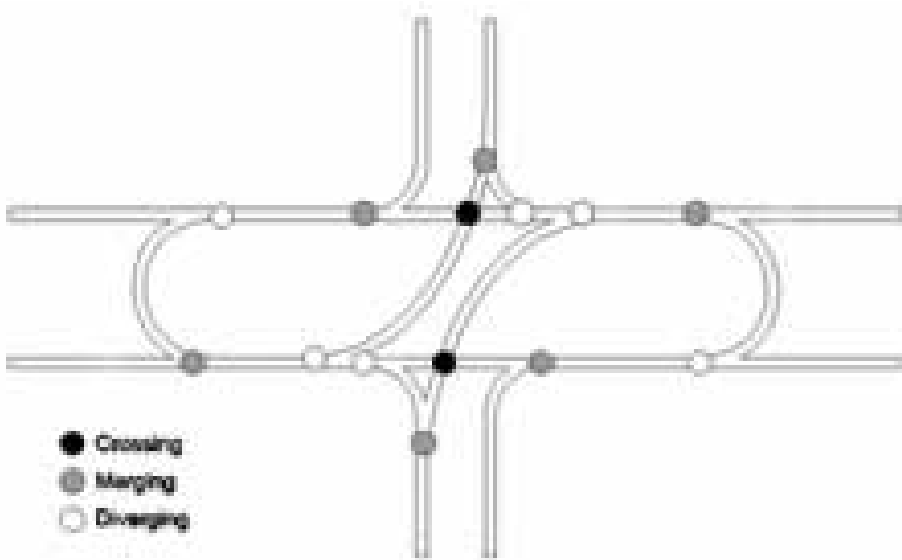
- **Project Readiness**
  - Demonstrate that a project has public support, requiring resolution of support from governing body
- **Project Eligibility**
  - Maintenance Projects Do Not Apply
- **Regional Category – Area D**
  - 10% Congestion Mitigation
  - 35% Economic Development
  - 15% Accessibility
  - 30% Safety
  - 10% Environmental Quality
- **Madison County**
  - Evaluate Culpeper District Top 100 Targeted Safety Needs
  - Evaluate All Intersections for EPDO Rate and Determine Best Fit
  - Route 29 is a Corridor of Statewide Significance

Factor	Congestion Mitigation		Safety		Accessibility			Economic Development		Environment		Land Use	
Measure	Increase in Peak Period Person Throughput	Reduction in Peak Period Delay	Reduction in Fatal and Injury Crashes	Reduction in Fatal and Injury Crash Rate	Increase in Access to Jobs	Increase in Access to Jobs for Disadvantaged Populations	Increase in Access to Multimodal Travel Choices	Square Feet of Commercial/Industrial Development Supported	Tons of Goods Impacted	Improvement to Travel Time Reliability	Potential to Improve Air Quality	Other Factor Values Scaled by Potential Acreage Impacted	Support of Transportation-Efficient Land Development

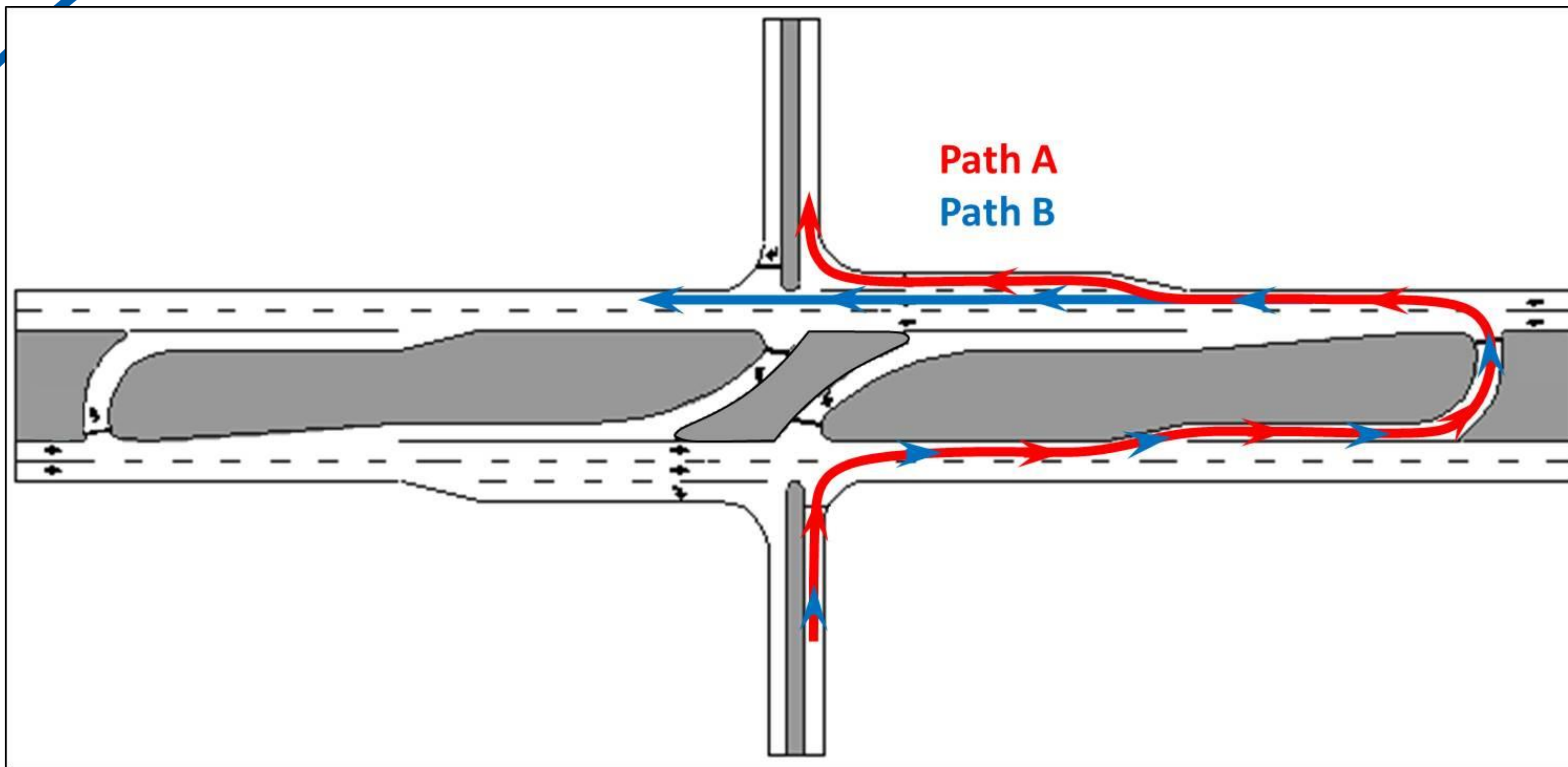
# CORRIDORS OF STATEWIDE SIGNIFICANCE

- **Characteristics**
  - Multiple Modes and/or Extended Freight Corridor
  - Connection among Regions, States, and/or Major Activity Centers
  - High Volume of Travel
  - Unique Statewide Function and/or Fulfillment of Statewide Goal
- **Arterial Management Plans**
  - CTB Goal: Eliminating Traffic Signals where possible
  - Evaluate Alternative Intersections designs for all existing signals to remain
  - Remove traffic signals feasibly and responsibly
    - Evaluate Alternative Intersections, including Restricted Crossing U-Turn (RCUT) intersection to reduce conflict points

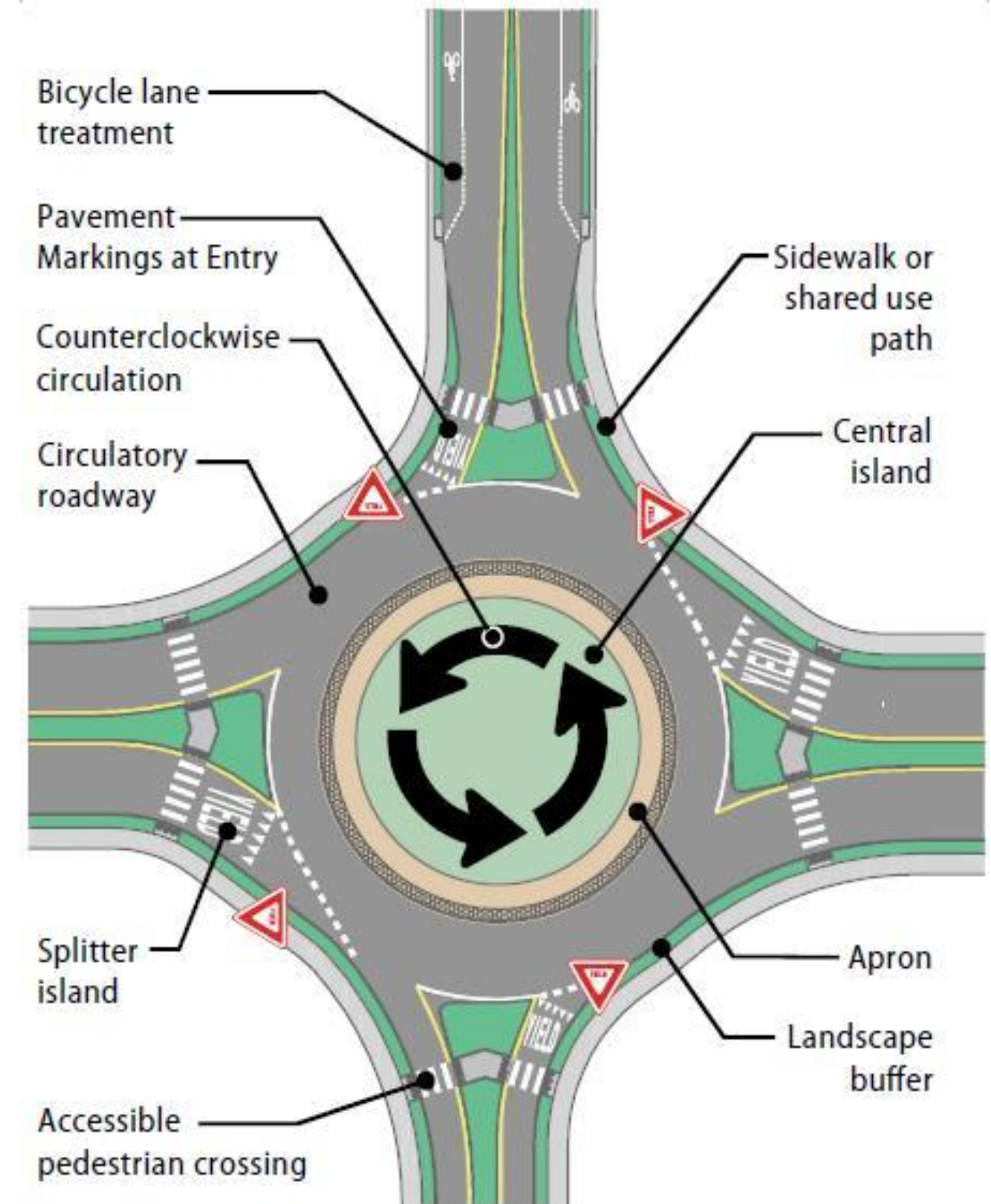
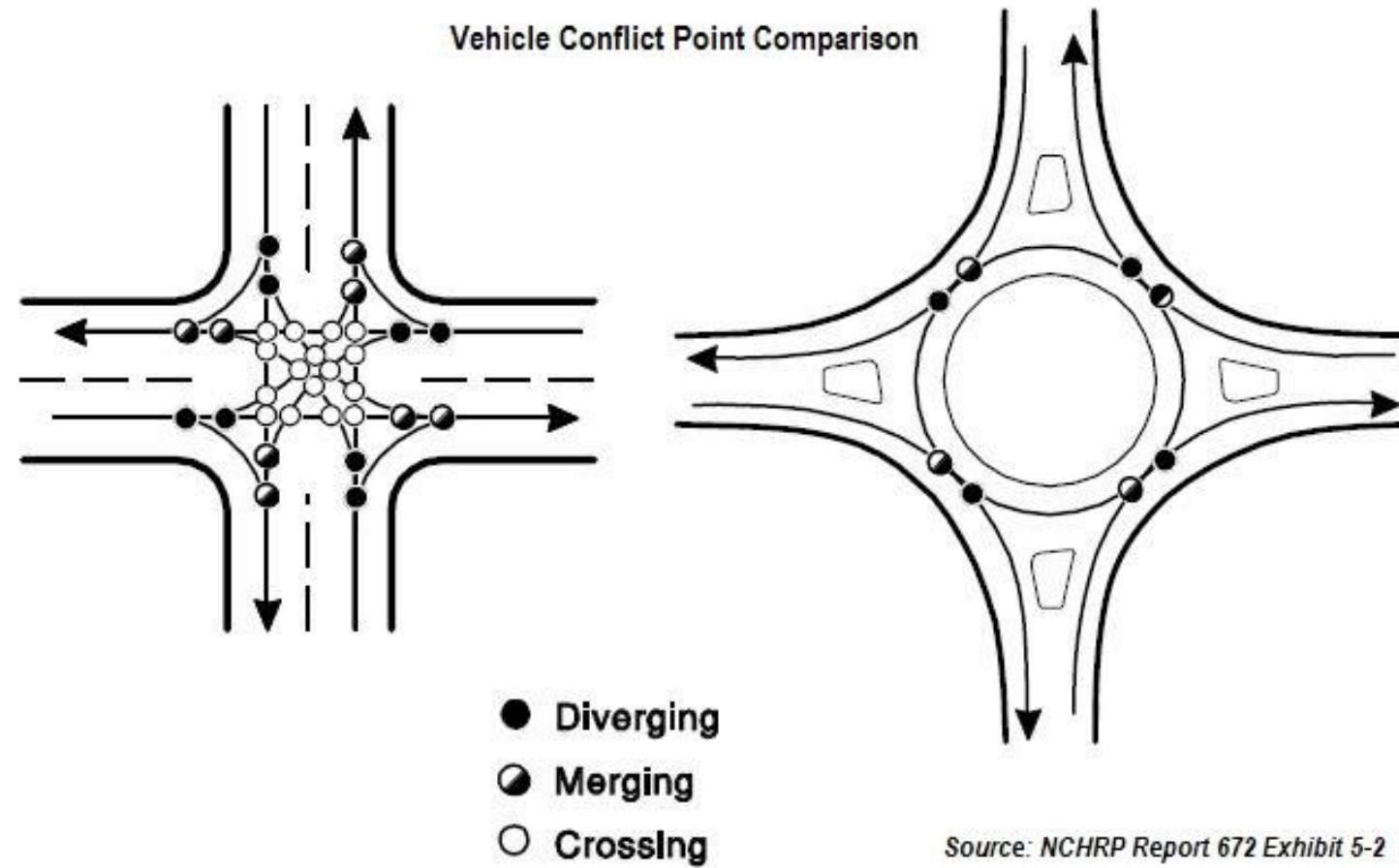
# RESTRICTED CROSSING U-TURN (RCUT)

Vehicle-Vehicle Conflict Points	Conventional	MUT	RCUT
<ul style="list-style-type: none"> <li>● Crossing</li> <li>● Merging</li> <li>○ Diverging</li> </ul>			
Crossing	16	4	2
Merging	8	6	6
Diverging	8	6	6
Total	32	16	14

## RESTRICTED CROSSING U-TURN (RCUT)



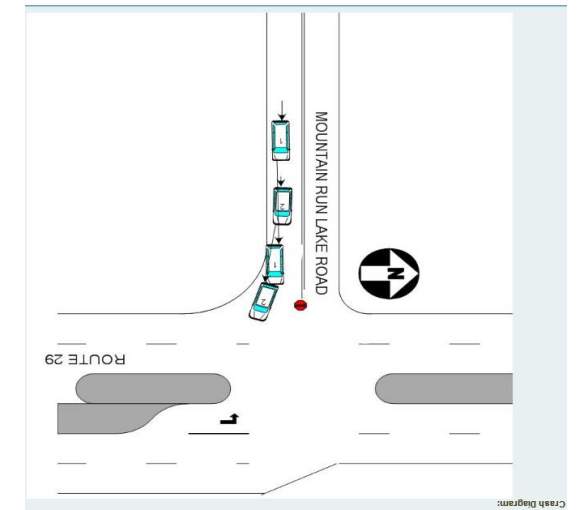
# ROUNDABOUTS





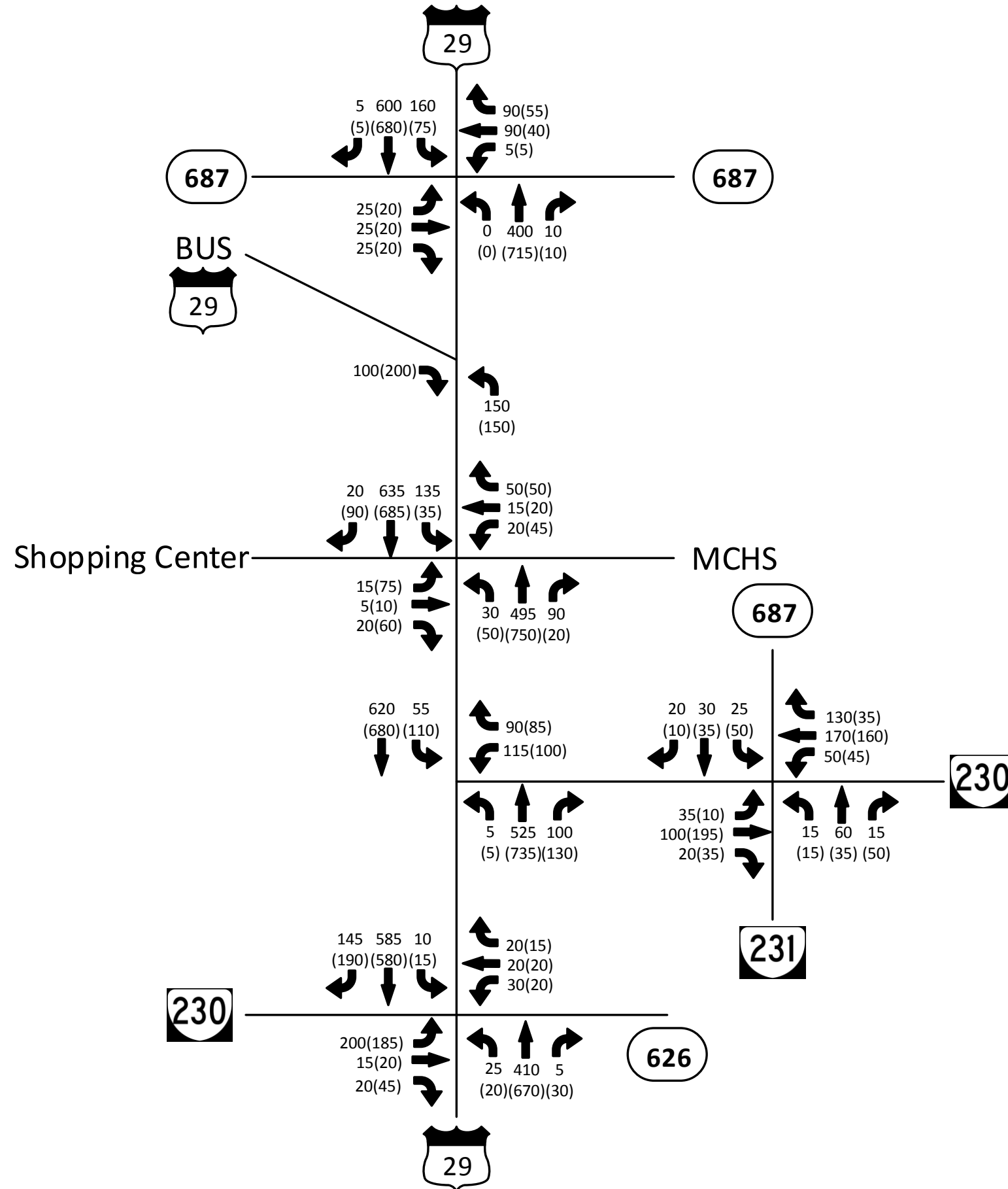
# RESTRICTED CROSSING U-TURN (RCUT)

- **US-29 @ Route 718 (Mountain Run Lake Road) Culpeper County**
  - **RCUT Alternative Intersection designed**
  - **In 18 months since intersection was complete and open to traffic:**
    - Only **ONE** property damage rear end crash on the side street has been documented
  - **Final Costs - \$1.789m**
    - P.E./Design - \$712k
    - Right of Way - \$50k (completed in 6 mos)
    - Construction - \$1.028m



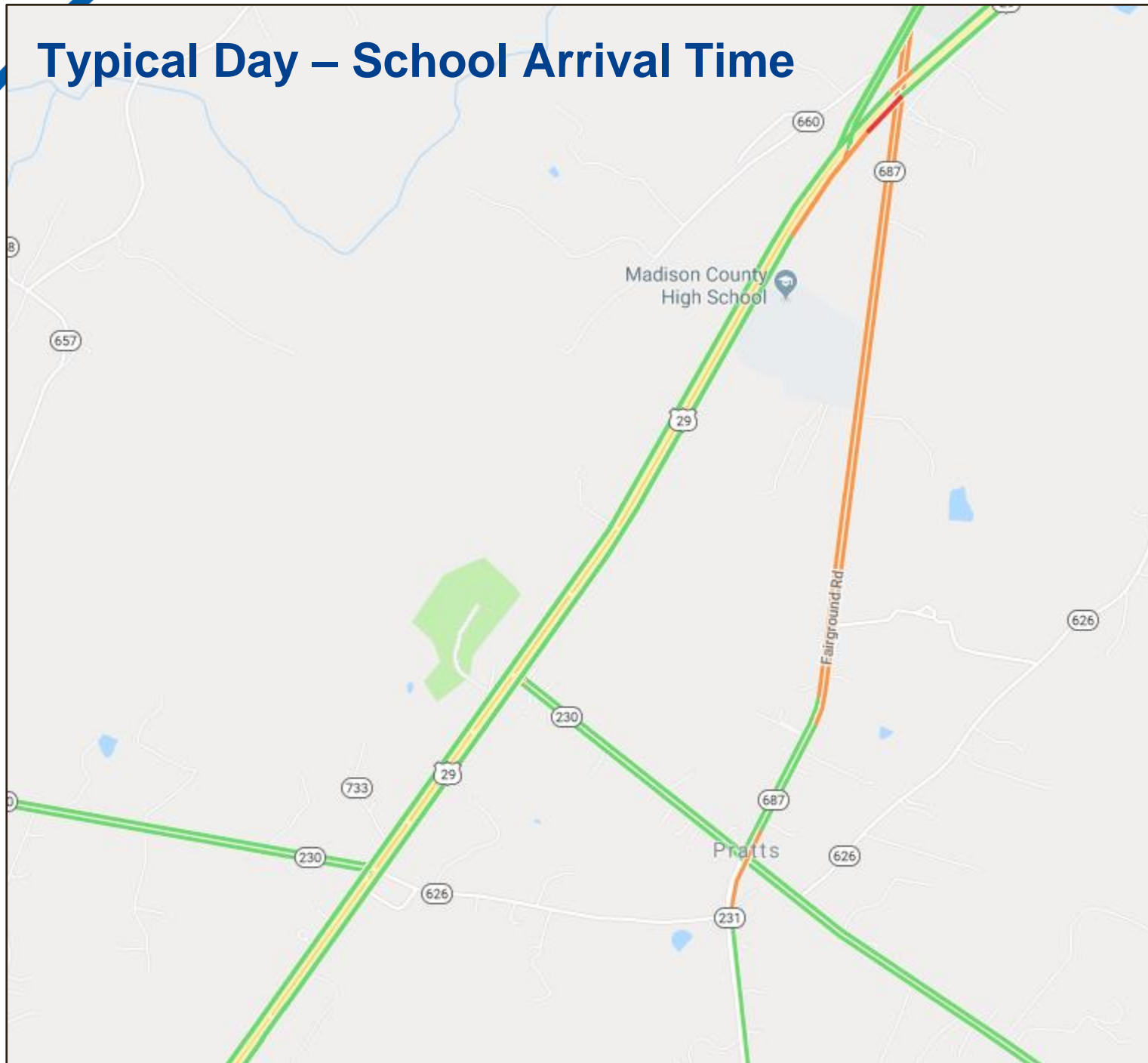


# EXISTING CONDITIONS

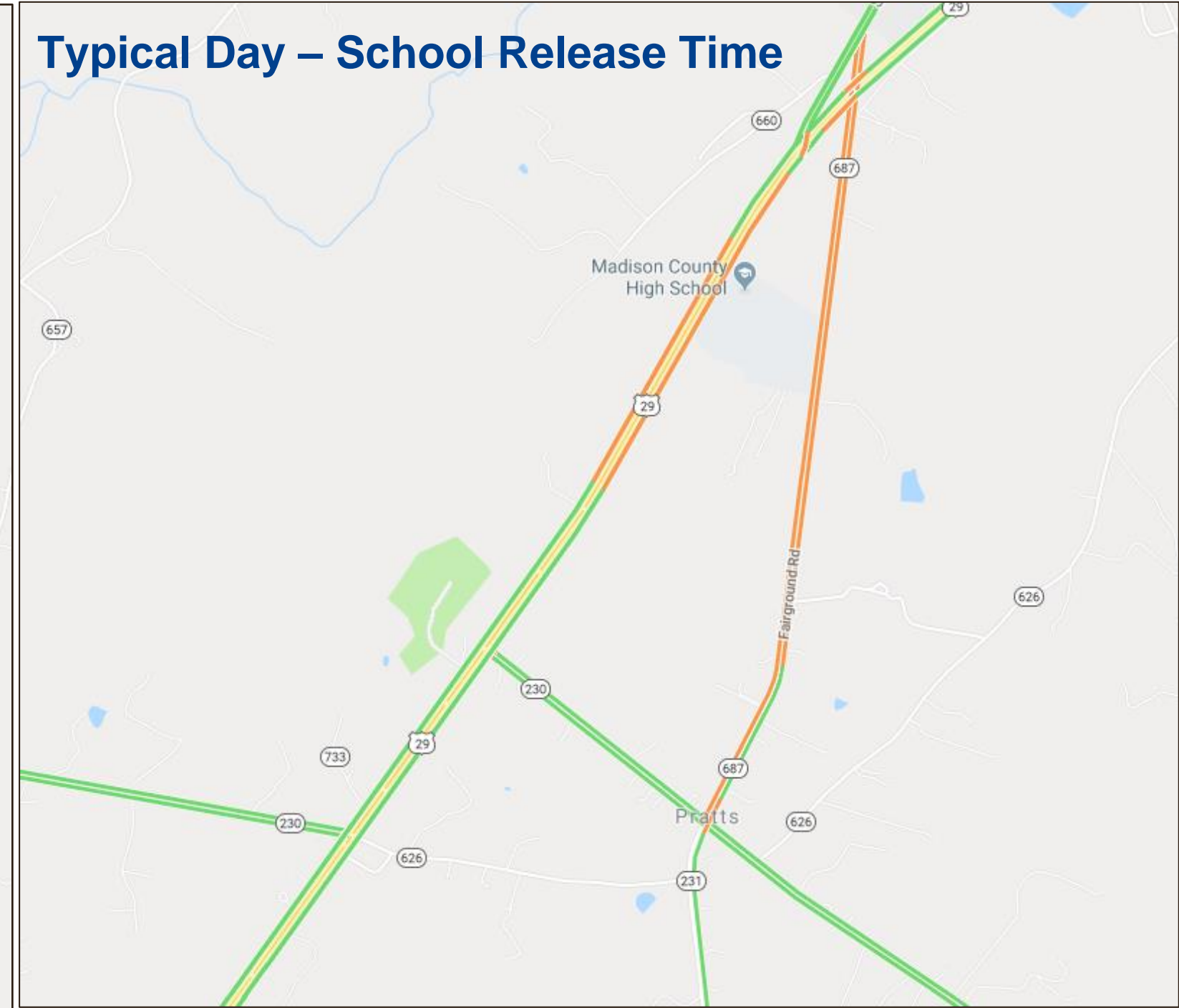


# EXISTING CONDITIONS

Typical Day – School Arrival Time



Typical Day – School Release Time



# CRASH DATA REVIEW



Intersection	Total Crashes	EPDO Rate	Crash Severity			
			K	A	B	C
Route 29 at Route 230 / Route 626	25	55	0	1	2	1
Route 29 at Route 230	14	45	0	1	1	1
Route 230 at Route 231 / Route 687	24	60	0	1	3	0
Route 29 at MCHS	29	50	0	1	2	0
Route 29 at Route 29 Business	3	10	0	0	1	0
Route 29 at Route 687	18	130	0	2	7	0
Route 29 at Business at Route 687	0	0	0	0	0	0



## APPLICATION #1



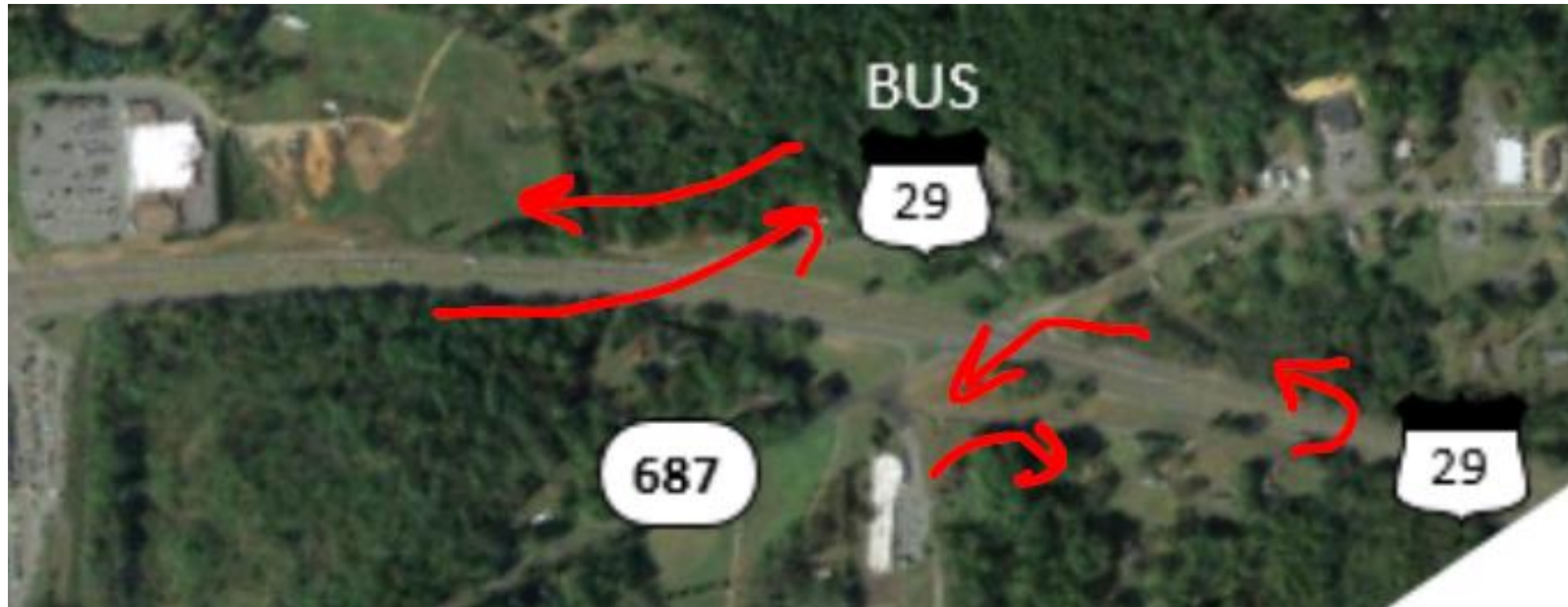
**Approximate Cost = \$7,460,000**

**J-Turn Crash Reduction Factor = 0.56**

**RCUT Crash Reduction Factor = 0.652**



## APPLICATION #2



Approximate Cost = \$2,500,000

J-Turn Crash Reduction Factor = 0.56

RCUT Crash Reduction Factor = 0.652

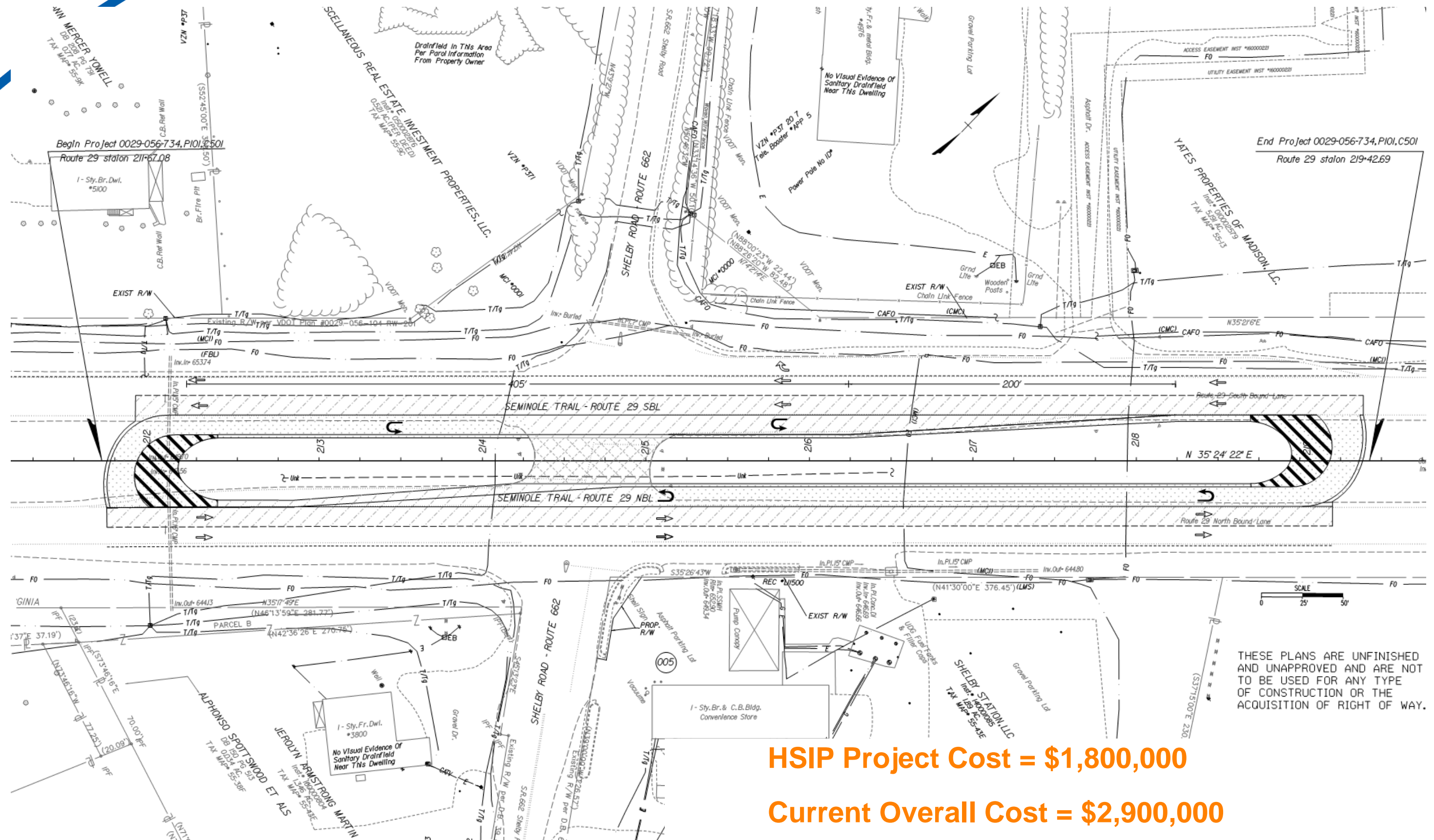
## APPLICATION #3



Approximate Cost = \$3,300,000

Roundabout Crash Reduction Factor = 0.42

# APPLICATION #4



HSIP Project Cost = \$1,800,000

Current Overall Cost = \$2,900,000

J-Turn Crash Reduction Factor = 0.56

## NEXT STEPS

- **Address Concerns from Board of Supervisors and County Staff**
- **Refine Conceptual Designs for the Applications**
- **Refine Cost Estimates for Applications**
- **Prepare Technical Report for Application Submittals**
- **Submit Applications before August 1, 2018**